Rangeland Plan Assignment 3 – Grazing Resources

Answer Page – Answer the following questions and submit this for the assignments. You do not need to submit the worksheet that you completed to get this necessary information.

Name: Karen Mastel.

1st → (10 points) **Biomass Production** (Please attach excel file with your calculations)

** Average biomass production in **unfavorable** year = 758,294 total pounds & 572 lbs/acre

** Average biomass production in **normal** year = 1,062,240 total pounds & 801 lbs/acre

** Average biomass production in **favorable** year = 1,366,577 total pounds & 1,031 lbs/acre

Describe in a narrative (i.e., a paragraph or two with complete sentences) the general amount of biomass produced on your management unit. Note how much biomass varies depending on climatic conditions.

Enter comments below:

2nd → (5 points) **Consider Limitations for Use**

*What **geographic features** on your management unit may limit access to forage for the grazing animals you selected (species/breed/type)?*

Dry Creek Management Unit was examined in Google Earth Pro. This information was combined with personal knowledge of the area. There are several steep banks along Dry Creek that would be in accessible to some breeds of cattle and horses, though these areas would be accessible to sheep, goats, and wild ungulates. These steeper slopes contribute very little vegetation to the available biomass on the Dry Creek unit.

Areas of concern are outlined on the map of the Dry Creek unit (Fig 1.) Not current reductions to stocking rate will be made, but a monitoring effort will be used to determine if the steep areas are indeed being grazed.

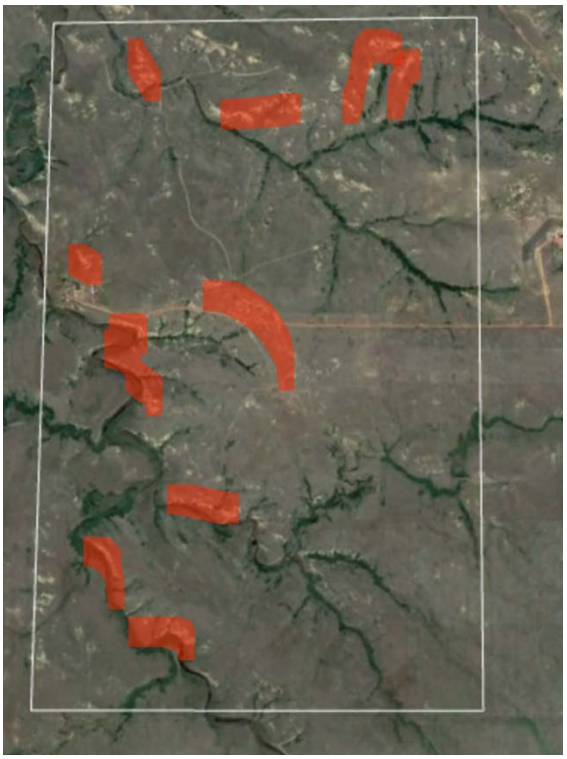

Fig 1 Areas of Try Creek Ranch with steep slopes that should be monitored to determine if these areas restrict access by grazing animals.

*Does **availability of water** restrict access to certain areas given the animal species/breed/type you selected?*

Dry Creek is a perennial stream in the South, House, Spring, East and Dry Creek Pastures, in dry years it is classified as intermittent in the North Pasture. About 20% of the area on the east side of the Dry Cree Unit is more than 1 mile from water and has water only from intermittent streams.

About 20% of the 1,326 acres has limited access to water. Therefore, I will reduce initial stocking by (265.2 acres × 801 lbs/acre) = 212,425 total pounds in a normal year.

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*** Based on these topographic and hydrologic restrictions, what is total biomass production available in a **normal year?** 1,062,240-212,425 = 849,815 total pounds.*

3rd → (5 points) **Calculate Forage Supply**

The Dry Creek Unit is in the Northern Mixed Prairie. In the review by Holechek it was recommended that moderate use of 40-50% of plants of biomass from key forage plants could be utilized and on a sustained basis. I will be bit conservative in setting the initial stocking rate a apply a proper use factor of 40%.

*What Proper Use Factor would you apply to your management unit? **40** %*

*Average production available forage in normal year = **849,814 × .4 = 339,926 total pounds***

4th → (5 points) Determine Grazing Season

During what months is your management unit generally able to be grazed?

A growth curve from the Ecological Site Description in Web Soil Survey. The growth of plants on the management unit begins March-April and plants become dormant by September. Most growth occurs between May and July with peak biomass occurring in June (Fig. 2).

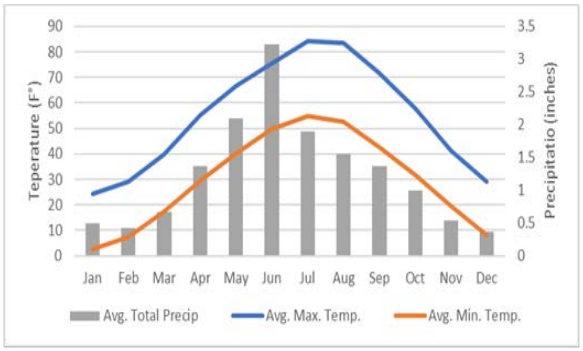
Growth Curve Description
Cool-season/warm-season dominant

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0%	0%	2%	6%	21%	40%	20%	6%	4%	1%	0%	0%

Figure 2 Seasonal Growth Description of biomass on Native Grasslands (cool-season dominant) on the Missouri Slope rejoin of western North Dakota (Soil Survey Staff 2017).

This growth curve is confirmed by climate data used displayed in Report 2 where average minimum temperature is near freezing April and returns to near freezing temperatures in October.

To determine, average date of peak biomass, I also consulting the University of Idaho Climate Engine (http://app.climateengine.org/), I examined 5 years between 2002 and 2017 and recorded peak Enhanced Vegetation Index (EVI). The average date of peak EVI was June 14, confirming that June is the month of maximum biomass accumulation as indicated by the growth curve on Web Soil Survey.



Describe season and number of days of grazing you propose on your management unit.

Suggested grazing period from May through November. The vegetation appears to be growing quickly and accumulating by at least mid-May. Grazing could continue through November till snow depth become prohibitive. At minimum a grazing period from mid-May until mid-November, 210 days, should be possible in most years.

5th → (5 points) Setting and Initial Stocking Rate.

How many animals can your land support in a year? 72 cows and 3 bulls

578.8 AUM cows + 26.26 AUM Bulls = 505 AUM therefore 1,326 acres /505 AUMS= 2.6 Acres/AUM

Stocking rate = 2.6 Acres/AUM